

WP 3: Methodology 5: Authentic Questions on Digital Competences

# Definition

## Basic definition

* What is the most important among all competences?
  + Are these competences internationally recognised?
* What is the minimum of the competences?
* Are the competences categorised? (primary level, x category)
* What is the core of technological competence: basics with which you can get by in ever changing supply?
* Is it possible to define both the digital and other competences (like meta skills and generic competences) that are demanded by the information society and link the development of these skills in pedagogical solutions of different forms of education and subjects?
* Could you list the existing competences? Are they offered by the universities?
* Is there an exhaustive list of all the competences?
* If so, where can we find it?
* What preliminary knowledge does it require?

## Connection to general competences

* To what cognitive competences – considered as priority in primary and lower secondary education, such as the ability to communicate, to plan, to learn how to learn, to compare and evaluate information sources, that is the key European competences – could the ICT be crucial or have an added value for their development?
* On a more general level, what competences will be addressed as more important in student development: cognitive individual competences or interaction/negotiation competences, in a more constructivist approach?
* Is there any relation between digital competences and subject related competences?
* Should digital competence be distinguished from other life competences?
* What does the word "competence" mean in the first place?
* What are the differences/similarities between competency and skills?
* Is there any conflict between digital and ordinary competence?

## Change of the field

* Digital competences needed at the workplace and at the labour market are changing continuously and fast. How can schools respond to this change adequately? What tools they have currently and what tools are missing?
* Which skills of digital competence are most relevant in today’s school – and how have they changed in the recent history; some required skills have changed over time, haven’t they?
* Digital world is in constant flux. To what extent is it possible to determine/assess any ICT competences at all?
* Why is the teaching of single programs and gadgets over others supported in schools? Information technology is a field which applications expire quickly.
* How can the change in media culture be used for learning? How can the teaching staff be made to understand the change and recognize the possibilities?
* Question for IT professionals: Which new elements of the digital literacy will be needed in the future?

## Other

* Are there any differences in competences by gender and age groups?
* How are digital competences divided between different stages of study?
* Educational ICT competences – who are these for? Why?
* How are ICT competences created?
* What are the best tools to create them?
* What are the advantages of having these competences?
* Competences should be described in a simple and understandable language!
* What are the obstacles preventing from digital competences development (lack of interest, unease towards technologies, lack of support)?
* Is there an evidence of digital technologies delivering learning outcomes in shortage subjects?
* Is there evidence of home use of technologies improving learning outcomes at school?

# Teaching digital competences

## Curriculum

* How to break down the concept of digital literacy to areas that school can use in teaching?
* What are the subjects at school that should support the development of digital competences in the first place?
* Which ICT skills and educational activities should be supported by schools:
  + personalised teaching,
  + problem solving, knowledge building,
  + mobile teaching,
  + assessment of educational activities and self-assessment,
  + online communication and collaboration,
  + creativity?
* Which ICT skills should be acquired at school?
* Are there standards of the digital skills for students? Which digital skills should students acquire after the Secondary school? Who should decide it?
* How important is early intervention regarding practice of digital skills, in relation to construction of digital literacy education later in the course?
* Is the current curriculum suitable for developing digital competence, and to what extent?
* Does the development of digital competence require a separate subject of its own?
* What role should social media have in school?
* How should schools deal with students' use of social media?
* It would be very useful if one could successfully bring up concrete examples on how digital literacy is related to the school subjects and in general.

## Pedagogical practices

### Information processing

* Copy and paste" how to relate to different sources, source criticism, reference sources
* But to my mind students are excessively adopting a Copy-paste working style. How to teach competence that would not only include information search, but also the processing and analysing of information ... the needs for and skills of interpretation. So that they would realise that there are many similar things and it’s essential to differ.
* What kind of questions should be used in making small tasks involving data search, in order to avoid copy-paste sort of answers?

### Use of virtual communities

* In what ways does participation in virtual communities influence digital competences?
* Does the participation in virtual communities have any positive effects on the development of digital competences?
* Has there been development of teaching and studying in environments like Second life, in which the environment brings value that cannot be achieved in other ways?
* Real and virtual worlds meld: communications, communities, learning, teaching and studying take part in both. How is this taken in account in teaching? Does this hold any new features for learning?

### Various methods

* What kind of teaching- and working method allows for good development of digital literacy?
* How can digital competence be best developed?
* Through what actions digital competences are developed (formal learning, informal learning, incidental learning) both in teachers and in students?
* Are there some digital skills models, according to which digital skills should be trained at school? Is there some set of the levels of students’ digital skills?
* Which Internet practices can be used in teaching a subject to develop ICT skills:
  + creating educational videos,
  + blogging (work in weblogs)
  + collaboration in wiki environment
  + collaboration on online-documents
  + researches by students
  + project work in specific environments (e.g scratch or Netlogo)
* How the good practice of the use of Digital skills for Education could be used to develop / achieve personalized education trough ICT use in different countries.
* Does the use of Interactive whiteboards facilitate a significant learning and a better acquisition of digital competences?
* In what way does the use of tools such as Word processors, spreadsheets and presentations tools contribute to the acquisition of digital competences?

### Risks of ICT

* Is there need for guideline for what content the pupils should have accesses to in the classrooms?
* What are the risks in relation to the use of ICT the schools should take into account?
* The well-being of children and the use of IT and media. What does scientific research say about this? What viewpoints are raised? Should teaching take this into account?
* What kind of policies are good in the collaboration of home and school, so that the draw of technology and media does not take the child and good regulation is maintained?
* To what dangers are the children exposed to with the use of the New Technologies?

## Assessment

* Digital assessment
  + Form and tools (which tools, form).
  + Content (criteria, achievement of objectives).
  + Ideas and tips for breaking down the competence aim with digital content.
  + Does the teachers have sufficient competence in relation to development of different types of tasks that is required for the use of digital tools and for developing good assessment criteria?
* What kind of digital skills/competences are emphasised on the exam? Is there an advantage, or has it no impact on the results of the exam that students have good digital skills.
* Should the digital competences be measured at school? If yes, then how – should it be done by means of a special test or by integrating it with measuring the competences in other subjects.
* The assessment of students of their different digital competences and their role in education acquisition (what needs and opportunities are there for faster development).
* How to measure educational ICT competences?
* What are the areas that should be assessed in educational ICT competences?
* Am I qualified to assess my competences?
* Are the IT competences taken into account while evaluating them?
* Who can check competences? How is it done?
* How are the competences checked against certain standards in general?
* Are there some taxonomies, assessment criteria how to evaluate the level of digital skills for Education?
* The competences acquired by using ICT and digital games are real and stable? Can they be assessed and how?

## Administration

### Equipment

* What factor framework (organization, equipment, access) should be present at the school for optimal learning and development of digital literacy? (Tips, advice and good examples).
* In what ways does the use of hardware influence digital competences?
* In what ways does the use of software influence digital competences?
* What kind of unity of technological devices is best to use for learning, one laptop per pupil, or a large enough an amount of tabletop computers?
* How many computers should there be for use, for the Telecommunication and information technology to support learning optimally?
* Which takes us further: individually characterized services for students, or a personal computer for every student?

### Other

* How do I get permanent access to scientific libraries?
* How long does it take, that the different online services brought to use start to make the cuts in expenses they are hoped to make? What is the average rise on expenses in the early stages of their use?
* What is the return on investment (ROI) for using ICT in classrooms?
* How many students per computer, in order to facilitate meaningful learning and the acquisition of digital competences?

## Formal vs. informal learning

* How do students and teachers perceive digital competences in these areas: in searching for information, in communication, in information production and in knowledge sharing? For what aims are those competences used (learning, entertainment, socialization, etc.)?
* What is the role of formal education (curriculum, school, including lessons) and non-formal education (friends, communication portals etc.) in developing digital competences of a student? How to employ non-formally acquired skills in formal education?
* What skill-sets do children acquire nowadays already before school age, and what skills are left unacquired without guidance?
* How are the skills already acquired by the students noted in teaching, examples?

# Teachers’ digital competence

## Teachers’ competence vs. pupils’ competence

* Is there any relation between the digital competences of a teacher and those of a student?
* Is it necessary for a teacher to know more than students?
* Should the competences differ for students and for teachers?
* Do IT competences of a subject teacher influence students’ knowledge?
* Should a teacher have bigger ICT competences than a student?
* What is the gap between teachers’ digital competences and students’ digital competences?

## Requirements for teachers’ competence

* Should we define the digital competences of the teaching staff in the updated OPE.fi – skill levels?
* Elaborate a minimum standard of requirement that the single teacher should be able to master regarding the use of digital tools (digital skills).
* What kind of pedagogical or didactical changes must the teachers relate to regarding development of digital competence? (New didactical models?)
* Which competences are relevant for a teacher?
* Which ICT competences should a teacher have?
* Does a teacher necessarily need to have ICT competences?
* Should the development of teachers ICT competences take more into account the enviroments actually used by the students?
* Does a teacher necessarily have to use all his/her IT competences?

## Developing teachers’ competences

* Through social media teachers also use information technology in their free time. Does this in any way help the use of technology in teaching? Is there a noticeable gap between different teacher generations in the know-how and attitudes towards technology?
* There were a lot of teacher training courses based on national *Educational Requirements for Teachers’ computer literacy programmes (Lithuania)*. It is interesting, how we can evaluate impact on the further teachers’ practice? Are they ready to teach with ICT after training? Are they using ICT in teaching process more successful, how?
* In which situations teachers share their technical knowledge or skill with others. What prompts them to share, how do they share it?
* How can a teacher keep himself/herself informed?
* How IT skills can help teachers to improve their own effectiveness of instructional process.
* What role for the teacher? What the training for the teachers in case of massive use of ICT and digital games?

## Other

* How do educational ICT competences benefit a teacher?
* How to measure the success of digital skills in practice? Experience shows us, that the responses to the questionnaires, how teachers use the computer, are mostly shallow. For example: if teacher has prepared Word.doc he/she maintains that he/she used ICT in education. But does it really make the impact on the learning process?
* Is there a relation between teachers’ digital competences and class teaching practices?
* Are the digital competences of teachers related to more efficient school administration?
* Can the growth of the digital competences in teachers potentiate the link between the schools of the clusters through, for instance, the creation of networks?

# Questions not directly related to digital competences

* Does random use vs. more deliberate use of ICT in classrooms have any significance for the pupils learning outcome.
* How do the so called side functions (like browsing the net, e-mail etc.), that aren’t of the teaching subject, affect learning in the web?
* Whose competences are we talking about?
* What is the awareness in the use of Internet respectively in teachers’ use and students’ use
* Beside educational game, is educational research interested in developing Web 2.0-oriented applications (i.e. social networks, forums, podcasting etc.) more useful at school? If yes, what are the benefits in terms of competences development?
* Since (at least in Italy), it is very difficult that 2 teachers can be together in a same class at the same time, is it possible to guide/observe/ 25 students working at the same time on different software/applications/digital games? Are there experiences of this sort?
* What kind of digital learning material best supports learning? How should it be used?
* With what kind of technological solutions can the participating learning of the pupils be encouraged?
* What are the most relevant IT applications in learning? Can this even be asked?
* Research on the differences between teachers that use of a steering tool on the Internet and the teachers that don’t use this kind of steering tool (learning outcome)
* Can general education take into account the practices (like personification, working life focus and flexibility) practiced in vocational education also in information technology?
* How can I ensure the construction of a systematic base of knowledge in web based teaching?
* What kinds of questions or comments make a quality conversation in the net?
* What language competences could be improved in case of ICT use in school?
* What is the effect size of ICT on learning? And somewhat more specific: effect size on student performance in maths, literacy etc. And even in more detail: effect size on student achievement in maths for grade 6 etc.
* Does a higher digital competence level have an impact on student performance at school? If so, how can we measure?
* Are there psychological / pedagogical researches on digital skills impact on the students’ motivation to perform different types of learning activities, or particular tasks?
* How IT skills can help students to improve their own self regulation of learning process.
* How can the rightful grading and the protection under the law of an individual be ensured in taking exams in a group?
* How to create the qualitative assessment of computer use in practice? Is it percentage of the time computer is used during the lessons? Or, maybe students can give examples, when the computer did help them to learn better?
* How to evaluate the Quality of the ICT use in schools, do the Teachers work effectively.
* Are there competences/skills/knowledge that can be assessed by using ICT (apart from the multiple choice test)?
* The selection of learning resources - on what basis will the schools / teachers in relation to the selection of educational materials (textbooks, digital learning materials and digital resources)
  + Is there an overall assessment (books, digital learning resources) or is this selection taken randomly?
* What are the effects of the usage of computers by children on their intellectual development and also on their social development?
* What type of activity should be more privileged with primary level students? An activity strongly guided by the teacher or a freer, and targeted for searching and discovering by the students?